

## **Parent Agreement on Ratings of Children's Attention Deficit/Hyperactivity Disorder and Broadband Externalizing Behaviors**

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Mothers and fathers often disagree in their ratings of child behavior, as evidenced clinically and as supported by a substantial literature examining parental agreement on broadband rating scales. The present study examined mother–father agreement on *Diagnostic and Statistical Manual*–based symptom-specific ratings of Attention-Deficit/Hyperactivity Disorder (ADHD), as compared to agreement on broadband ratings of externalizing behavior. Based on mother and father ratings of 324 children who participated in the Multimodal Treatment Study of Children with ADHD (MTA), parental agreement was computed and patterns of disagreement examined. Mother–father ratings were significantly correlated; however, a clear pattern of higher ratings by mothers was present. Agreement on attention-deficit/hyperactivity disorder symptom-specific ratings was significantly lower than that for broadband externalizing behaviors and oppositional defiant disorder symptoms. Of several moderator variables tested, parental stress was the only one that predicted the discrepancy in ratings. Disagreement between parents is clinically significant and may pose complications to the diagnostic process.

Practice parameters for the evidence-based assessment of children with Attention-Deficit/Hyperactivity Disorder (ADHD) recommend the collection of standardized rating scales from multiple settings and sources (American Academy of Child and Adolescent Psychiatry, 1997; American Academy of Pediatrics, 2000). Specifically, the American Academy of Pediatrics' guidelines (2000) stipulate that ADHD symptom-specific ratings should be collected from a classroom teacher and from parents. This approach, though comprehensive, inevitably creates situations where informants provide discrepant or contradictory ratings. The reasons for interrater discrepancies and how to interpret such discrepancies have not been readily established.

In practice and research, discrepant ratings may occur between parents and teachers and even between mothers and fathers. It appears that informants from the same setting (e.g., mothers and fathers) rate children more similarly than do informants from different settings (e.g., mothers and teachers; Achenbach, McConaughy, & Howell, 1987). Estimates of parent–teacher agreement demonstrate low but statistically significant correlations. For example, in a meta-analysis of 119 studies, Achenbach et al. (1987) reported an average correlation of .27 between parents and teachers on broadband measures such as the *Child Behavior Checklist* (CBCL). Comparable levels of parent–teacher agreement are observed when *Diagnostic and Statistical Manual (DSM-IV-TR)* symptoms of ADHD are rated ( $r = .09\text{--}.39$ ; Antrop, Roeyers, Oosterlann, & VanOost, 2002;

Shaffer, Fisher, Dulcan, & Davies, 1996; Wolraich et al., 2004).

Agreement between mothers and fathers tends to be higher than that reported for parents and teachers, although estimates are far from concordant (Achenbach, McConaughy, & Howell, 1987; Duhig, Renk, Epstein, & Phares, 2000; Mash & Johnston, 1983). Achenbach et al. (1987) reported a moderate level of agreement between parent's reports of their children's behavior ( $r = .59$ ). A more recent meta-analysis containing 60 studies found similar rates of mother-father agreement on broadband ratings of behavior problems ( $r = .61$ ; Duhig et al. 2000).

Notably, all the mother-father agreement research has focused on broadband rating scales, not ADHD symptom-specific ratings. Two findings from research examining mother-father agreement on broadband ratings would seem to have implications for mother-father agreement on ratings of ADHD symptomatology. First, informant agreement appears to be higher for externalizing behaviors (e.g., aggression and hyperactivity) as compared to internalizing behaviors (e.g., depression and anxiety; Achenbach et al., 1987; Christensen, Margolin, & Sullaway, 1992; Duhig et al., 2000). This finding is typically attributed to the fact that externalizing behaviors are more overt and therefore more observable (Achenbach et al., 1987; Christensen et al., 1992; De Los Reyes & Kazdin, 2005). Some evidence supports this theory. For example, Christensen et al. (1992) found that externalizing items on the CBCL, as rated by a group of independent raters, were more objective and observable than internalizing items and that the former were associated with higher parental agreement. Because ADHD behaviors are considered to be on the externalizing spectrum, high parental agreement might be expected. However, one might also predict that agreement may be different across the ADHD symptom domains—that is, inattention versus hyperactivity/impulsivity. These predictions have not been examined.

A second relevant finding is that mothers consistently rate externalizing behaviors more severely than fathers do (Christensen et al., 1992; Duhig et al., 2000; Jensen, Traylor, Xenakis, & Davis, 1988; Mash & Johnston, 1983). Concerning ratings of ADHD behaviors, a similar pattern of higher ratings among mothers than fathers would be expected. Again, this prediction has not been examined on ADHD symptom-specific scales.

Given current recommendations to use *DSM*-based ADHD symptom checklists (American Academy of Pediatrics, 2000), there is a clear need for more information regarding the utility of gathering ADHD symptom-specific ratings from multiple parents, as well as guidelines for handling discrepant ratings. Because agreement tends to be higher when the area being rated is objective and observable (Christensen et al., 1992), parental agreement on measures of *DSM*-based oppositional symptoms may be higher than agreement in *DSM*-based ADHD symptoms, although this has not been examined.

Given probable rating discrepancies between mothers and fathers on ADHD symptom-specific ratings, it is important to understand possible predictors of discrepancies. For example, mother-father discrepancies in child ratings may be the result of inherent gender biases, such as gender-specific tolerance levels for externalizing behaviors. Specifically, fathers, as compared to mothers, may be more likely to perceive externalizing behaviors as a natural aspect of childhood for boys and, as such, a less problematic area (Singh, 2003).

Recent research examining parent-teacher agreement on ratings of *DSM*-based ADHD symptoms found that variables specific to the parent may predict rating discrepancies (van der Oord, Pris, Oosterlann, & Emmelkamp, 2006). For example, parental stress has been shown to affect ratings of children, with high stress associated with more severe ratings of a child's disruptive behavior (Chi et al., in press; van der Oord et al., 2006). Similarly, parents of children with ADHD are more likely to exhibit symptoms of depression (Nigg & Hinshaw, 1998), and

symptoms of depression are associated with more severe ratings of behavior (Chi & Hinshaw, 2002; Youngstrom, Izard, & Ackerman, 1999; Youngstrom, Loeber, & Stouthamer-Loeber, 2000). Although this could be a result of a child's more severe externalizing behavior causing more parental depression, it has been partially explained with a depression–distortion hypothesis (Chi et al., in press; Youngstrom et al., 1999).

The purpose of the present study is to examine maternal and paternal agreement on ratings of ADHD symptomatology based on the *DSM-IV-TR*. For the sake of comparison, agreement on ratings of Oppositional Defiant Disorder (ODD) symptomatology and externalizing behavior (based on the CBCL) are also examined. We predict that in a clinical sample of children with ADHD, parental agreement on ADHD symptom-specific ratings will be comparable to what is typically reported in the broadband externalizing literature (e.g., Duhig et al., 2000 meta-analysis). Regarding the observable nature of behavior, we hypothesize that there will be higher agreement on symptoms of ODD and hyperactivity/ impulsivity than for symptoms of inattention. Similar to what has been reported with broadband ratings, our prediction is that mothers will rate ADHD symptoms and oppositional behaviors more severely than fathers will.

This study also examines variables that might help to explain any discrepancies between maternal and paternal ratings. A number of studies of the depression–distortion hypothesis have found that parental symptoms of depression (usually maternal) predict informant discrepancies on broadband measures of child behavior (e.g., Chi et al., in press; Youngstrom et al., 2000; Youngstrom, Izard, & Ackerman, 1999). De Los Reyes, Goodman, Kliewer, and Reid-Quinones (2008) recently extended this finding by showing that children's depressive symptoms are important in predicting discrepancies. However, a recent study focusing on parent–teacher agreement on *DSM*-based symptom-specific ratings of ADHD found that stress, but not depression, predicted the discrepancy between parents and teachers (van der Oord et al., 2006). Accordingly, we predict that stress, not depression, will predict mother–father rating discrepancies on ADHD symptom-specific ratings.

## **Method**

### ***Participants***

Participants were recruited for the Multimodal Treatment Study of Children With ADHD (MTA Cooperative Group, 1999). Children ( $n = 579$ ) were between 7 and 9 years of age and had a diagnosis of ADHD–combined type at the time of recruitment (American Psychiatric Association, 2000). This diagnosis was determined using the fourth version of the *Diagnostic Interview Schedule for Children–Parent Report (DISC-P 4.0)* (Shaffer, Fischer, Lucas, Dulcan, & Schwab-Stone, 2000), supplemented with up to two symptoms identified by children's teachers using the *Swanson, Nolan, and Pelham Rating Scale–Version 4* (SNAP-IV; Swanson, 1992) for cases falling just below the schedule's diagnostic threshold. Co-occurring oppositional defiant or conduct disorders (54%), anxiety disorders (33.5%), and affective disorders (3.8%) were diagnosed with the *DISC-P 4.0*. Of the 324 with ratings by both parents, 62% were Caucasian; 17%, African American; 8%, mixed descent; 6%, Hispanic; and 7%, other. Eighty percent of the sample was male.

At baseline, ratings were collected from mothers and fathers when more than one parent was available. These analyses used the ratings collected from 321 married couples (317 biological mothers, 287 biological fathers, 34 stepfathers, and 4 stepmothers).

### ***Measures***

### *SNAP-IV.*

The SNAP-IV has 39 items, which are derived from *DSM-IV-TR* criteria for ADHD and ODD. The items on this scale are reproduced directly from the *DSM-IV-TR* (i.e., the symptoms for ADHD and ODD) and so include 18 ADHD items from the *DSM-IV-TR* (9 inattention and 9 hyperactive/impulsive symptoms). Parents and teachers responded on a 4-point Likert-type scale, rating the severity of symptoms in the past 4 weeks (0 = *not at all*, 3 = *very much*). The scale yields ADHD-related factor scores on inattention (SNAP-IV-IA) and hyperactivity/impulsivity (SNAP-IV-HI). Each factor score is derived by summing the items for each symptom domain and then dividing by the number of items on each factor (SNAP-IV-IA = 9 items, SNAP-IV-HI = 9 items). Summing the 18 *DSM-IV-TR*-based ADHD symptom ratings yields a total score for ADHD (SNAP-IV-ADHD). Normative data for the SNAP-IV are provided by Gaub and Carlson (1997) and Swanson (1992). Based on the SNAP-IV-based parent ratings collected from the ADHD and control participants from the Multimodal Treatment Study of Children With ADHD sample ( $n = 1,311$ ), the 18 *DSM*-based ADHD items were found to have excellent internal consistency, Cronbach's  $\alpha = .97$ .

### *CBCL.*

The CBCL (Achenbach, 1991) is one of the most widely used rating scales in research and clinical practice. The extended caregiver version (i.e., 4- to 18-year-olds) was collected from parents at baseline in the Multimodal Treatment Study of Children With ADHD. Item scores on the CBCL range from 0 (*not true of child*) to 2 (*very true or often true of child*). The Externalizing Problems Scale (CBCL-EX) comprises 27 items, 8 from the Delinquent Behavior subscale and 19 from the Aggressive Behavior subscale. One-week test-retest stability coefficient for the CBCL-EX is .93 (Achenbach, 1991).

### *Parenting Stress Index–Short Form.*

The *Parenting Stress Index–Short Form* (PSI-SF) comprises 36 items that parents complete via a 5-point Likert-type scale regarding how much they agree with the item (5 = *strongly disagree*, 1 = *strongly agree*). The PSI-SF consists of two empirically derived factors, Parental Distress and Parent–Child Dysfunctional Interaction, which can be combined to create a PSI-SF total score. The PSI-SF is a self-administered scale that has acceptable test-retest reliability (range = .68–.85) and internal reliability (range = .80–.87; Abidin, 1990).

### *Beck Depression Inventory.*

The *Beck Depression Inventory* (BDI) consists of 21 items rated on a 4-point Likert-type scale, with higher scores indicating greater depression. The inventory is frequently utilized in research to evaluate parental depression in samples of children with disruptive behavior disorders. The BDI has good internal consistency and split-half reliability, and it has been found to differentiate between mothers of clinic-referred and non-clinic-referred children (Beck, Steer, & Garbin, 1988).

## **Statistical Analyses**

To assess parental agreement, intraclass correlations (Shrout & Fleiss, 1979) and Pearson correlations were conducted examining mother–father agreement on the SNAP-IV-IA, SNAP-IV-HI, SNAP-IV-ADHD, and SNAP-IV-ODD, and CBCL-EX. Differences in mother–father correlational coefficients between ADHD symptoms, ODD symptoms, and the externalizing behavior symptoms were assessed using Fisher  $r$ -to- $z$  transformations. Discrepancies

in mother and father ratings were assessed using *t* tests.

Finally, a set standard of regressions were performed to assess for the possible moderating effects of other variables on any observed discrepancies in mother–father ratings. In line with the recommendations provided by De Los Reyes and Kazdin (2004), standardized differences scores were utilized as the dependent variable. Specifically, rating scale means were transformed into *z* scores, and the difference between mother and father *z* scores (father's *z* scores were subtracted from mother's *z* scores) was calculated and used as the dependent variable. In their review of methods for calculating informant discrepancies, De Los Reyes and Kazdin found that standardized difference scores correlated equally well with the informants' individual ratings and thus produced the most consistent estimate of informant discrepancies. Six predictor variables were simultaneously entered into the regression: child race (Caucasian or African American), child gender, PSI-SF (total score for mother, total score for father), BDI (total score for mother, total score for father). A regression was run for the difference scores of the five dependent variables: SNAP-IV-IA, SNAP-IV-HI, SNAP-IV-ADHD, SNAP-IV-ODD, and CBCL-EX.

## **Results**

### ***Correlation Analyses***

Intraclass correlations between mothers and fathers for SNAP-IV-IA, SNAP-IV-HI, and SNAP-IV-ADHD were moderate (intraclass correlation range = .38-.40) and statistically significant ( $p < .01$ ; see Table 1). There was no difference in agreement between ratings of inattention symptoms and hyperactivity/impulsivity symptoms ( $p > .05$ ). Correlations on the CBCL-EX and SNAP-IV-ODD were larger (intraclass correlation = .56) and statistically significant ( $p < .01$ ). The magnitude of correlation for mother-father ratings of ODD symptoms on the SNAP-IV and externalizing behaviors on the CBCL was significantly higher than associations observed on the SNAP-IV ADHD symptom scales ( $p < .01$ ). The ODD and CBCL correlations were not statistically different ( $p > .05$ ).

### ***Comparisons of Mother and Father Ratings***

Mothers rated their children significantly higher (more severe) than fathers did on all SNAP-IV scales (i.e., SNAP-IV-IA, SNAP-IV-HI, SNAP-IV-ADHD, and SNAP-IV-ODD) and the CBCL-EX. The differences reflect small-to-medium effect sizes for disagreement, depending on the rating (see Table 2).

### ***Moderator Analyses***

Using standardized difference scores from the SNAP-IV-IA, SNAP-IV-HI, SNAP-IV-ADHD, SNAP-IV-ODD, and CBCL-EX as dependent measures, the father's PSI-SF

**Table 1**  
**Agreement Between Mothers and Fathers for Scale Ratings**

Questionnaire: Scale	<i>n</i>	Intraclass Correlation	Pearson Correlation
<i>Swanson, Nolan, and Pelham Rating Scale–Version 4</i>			
Inattention	320	.39	.45
Hyperactivity/Impulsivity	318	.40	.45
Attention-Deficit/Hyperactivity Disorder	319	.38	.43
Oppositional Defiant Disorder	317	.56	.57
<i>Child Behavior Checklist</i>			
Externalizing Problems	315	.56	.58

Note: All correlations significant at  $p < .01$ .

**Table 2**  
**Comparison of Ratings Between Mothers and Fathers**

Questionnaire: Scale	Mothers			Fathers			<i>t</i>	<i>p</i>	<i>ES</i>
	<i>n</i>	<i>M</i> <sup>a</sup>	<i>SD</i>	<i>n</i>	<i>M</i> <sup>a</sup>	<i>SD</i>			
<i>Swanson, Nolan, and Pelham Rating Scale–Version 4</i>									
Inattention	320	2.03	0.63	321	1.77	0.66	−5.09	< .0001	.40
Hyperactivity/Impulsivity	320	1.82	0.63	319	1.60	0.69	−4.22	< .0001	.33
Attention-Deficit/Hyperactivity Disorder	319	1.93	0.55	319	1.69	0.61	−5.15	< .0001	.41
Oppositional Defiant Disorder	318	1.40	0.66	320	1.25	0.71	−2.63	< .01	.21
<i>Child Behavior Checklist</i>									
Externalizing Problems	320	19.87	6.76	316	17.83	9.31	−2.79	< .01	.25

a. Item means are reported for *Swanson, Nolan, and Pelham Rating Scale–Version 4*. *ES* = Cohen's *d* effect size.

**Table 3**  
**Results of Regression Analyses ( $\beta$ )**

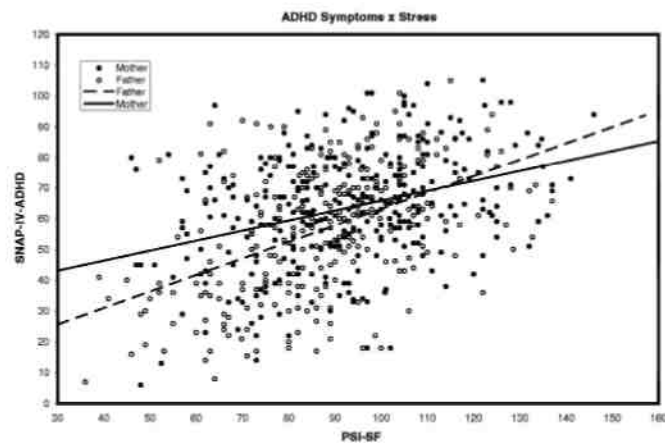
Predictors	SNAP-IV Scales				
	IA ( <i>n</i> = 131)	HI ( <i>n</i> = 130)	ADHD ( <i>n</i> = 131)	ODD ( <i>n</i> = 128)	CBCL-EX ( <i>n</i> = 127)
Child					
Gender	-.098	.072	-.036	-.326	-.024
Race	.052	-.146	-.049	-.236	-.009
PSI-SF					
Father	-.013**	-.009*	-.013**	-.013**	-.015*
Mother	.007	.001	.005	-.011*	.013*
BDI					
Father	.000	.029	.018	.012	.011
Mother	.009	.009	.010	.012	-.001

Note: SNAP-IV and CBCL scores are difference scores (father's *z* score subtracted from mother's *z* score). SNAP-IV = *Swanson, Nolan, and Pelham Rating Scale-Version 4*; IA = Inattention; HI = Hyperactivity/Impulsivity; ADHD = Attention-Deficit/Hyperactivity Disorder; ODD = Oppositional Defiant Disorder; BDI = *Beck Depression Inventory*; PSI-SF = *Parent Stress Index-Short Form*.

\**p* < .05. \*\**p* < .01.

total score was significant in all the analyses. Specifically, there was a significant negative relationship between fathers' stress scores and all dependent variables (see Table 3). There was also a significant negative relationship between the mothers' PSI-SF total score and ODD symptoms, as well as a significant positive relationship between the mothers' PSI-SF and the CBCL-EX. Child gender, child race, and BDI scores (mother and father) were not significantly correlated with any of the dependent variables.

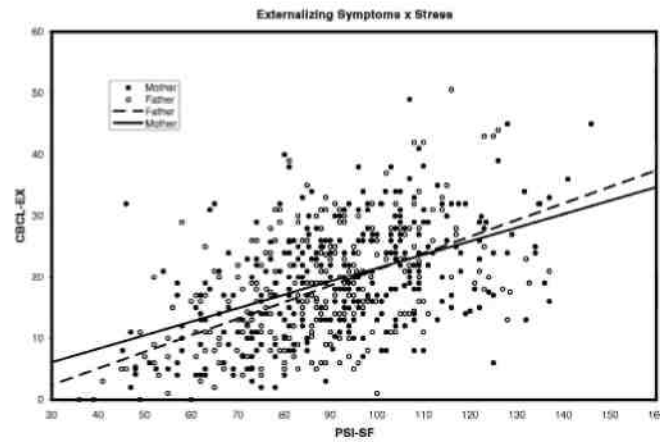
**Figure 1**  
**Parents' Stress Scores and Ratings of Attention-Deficit/Hyperactivity Disorder Symptoms**



Note: Higher scores on the y-axis indicate greater numbers of symptoms. SNAP-IV-ADHD = Attention-Deficit/Hyperactivity Disorder Scale of the Swanson, Nolan, and Pelham Rating Scale-Version 4; PSI-SF = Parent Stress Index-Short Form.



**Figure 2**  
**Parents' Stress Scores and Ratings of**  
**Externalizing Behavior Symptoms**



Note: Higher scores on the y-axis indicate greater numbers of symptoms. CBCL-EX = Externalizing Problems Scale of the *Child Behavior Checklist*; PSI-SF = *Parent Stress Index–Short Form*.

To understand and elucidate these findings, we plotted the mother and father ratings of ADHD symptoms (i.e., SNAP-IV-ADHD) and externalizing symptoms (i.e., CBCL-EX) as a function of mothers' and fathers' PSI-SF total score ratings (see Figures 1 and 2). A pattern was revealed whereby fathers with low parental stress rated their children's ADHD and externalizing symptoms lower than mothers; however, as stress increased, this pattern reversed, and fathers rated their children more severely than mothers did.

## Discussion

In a clinic sample of children diagnosed with ADHD—combined type, mothers and fathers demonstrated moderate agreement in ratings of ADHD symptomatology and externalizing problems. There was a clear pattern of mothers' rating their children as having higher levels of ADHD and ODD symptomatology and externalizing problems, when compared to the ratings of fathers. However, it appeared that parental stress may moderate these inter-parent discrepancies in ratings.

Although parental agreement on ADHD symptom-specific ratings was moderate, the magnitude of agreement was significantly less than what was observed for ODD symptom ratings and broadband externalizing symptoms ratings. This finding is not consistent with the parent–teacher agreement literature, which has repeatedly demonstrated that parent–teacher agreement on ADHD symptoms is similar in magnitude to parent–teacher agreement on broadband measures (Amador-Campos, Forns-Santacana, Guardia-Olmos, & Pero-Cebollero, 2006; Antrop, Roeyers, Oosterlann, & Van Oost, 2002; Wolraich et al., 2004). One possible explanation for this finding is that the relative reliability of the rating scales (i.e., SNAP-IV versus CBCL) is contributing to the different correlations. However, *DSM*-based ADHD rating scales and the CBCL have nearly identical psychometric properties (Pelham, Fabiano, & Massetti, 2005)—for example, Cronbach's

alpha (for CBCL, .84; for ADHD rating scales, .87–.96), test–retest reliability (for CBCL, .71–.90; for ADHD rating scales, .70–.86).

Also, the ODD ratings and the ADHD ratings within the SNAP-IV produce discrepant levels of mother–father agreement, thereby suggesting that there is something inherent to ADHD ratings that results in less parental agreement. A second plausible explanation for lower parental agreement on ADHD ratings is that many broadband externalizing items focus on delinquent and aggressive behaviors. These behaviors may be more highly observable than symptoms of ADHD and, therefore, more likely to produce high agreement (Christensen et al., 1992). The theory that more easily observed behaviors generate higher agreement is supported by our finding that mother–father agreement on ODD symptoms is similar (not statistically different) to rates of broadband externalizing agreement. However, our hypothesis was not confirmed that hyperactivity/ impulsivity symptoms, as compared to inattention symptoms, are more easily observed and would therefore have higher correlations.

Our analyses indicate that the differences between maternal and paternal ratings of ADHD symptoms have the potential to significantly affect diagnostic decisions. Examination of intraclass correlations, which takes into account chance agreement between raters, revealed correlations between mothers and fathers of .38 for the SNAP-IV-ADHD and .56 for the SNAP-IV-ODD. These levels of association suggest not only moderate agreement but also considerable disagreement. This disagreement between parents is clinically significant and so may pose complications to the diagnostic process. For example, based on a strict cutoff of six or more symptoms (defined by ratings of *pretty much* and *very much*), mothers' SNAP-IV ratings alone would suggest a *DSM-IV-TR* based diagnosis of ADHD in 73% of study participants. In contrast, if fathers' ratings alone were utilized, 58% of the sample would have met symptom criteria for ADHD. Considering that the guidelines of the American Academy of Pediatrics and the American Academy of Child and Adolescent Psychiatry currently do not include information on how to incorporate ratings from both parents, this finding has significant clinical implications.

Effect size analyses revealed that the disagreement between parents on the SNAP-IV ratings of ADHD symptomatology was moderate,  $d = .41$  (see Table 2). This is a noteworthy finding that has significant implications for treatment outcome research. Specifically, in treatment outcome studies where repeated measures are routinely collected, if the investigator does not ensure that the same parent completes the ratings each time, then treatment effects may be artificially inflated or nullified, depending on the order in which mother and father ratings were acquired. For example, if the mother of a treatment participant completed SNAP-IV ratings at baseline, and the father at postintervention, a moderate effect of treatment would appear even if there was actually no effect. This finding suggests that significant efforts should be made to have the same parent complete repeated measures ratings; it may also be advisable for changes in the rater to be documented and reported as part of treatment outcome studies.

Previous research has found that parental stress and depression may influence agreement in parent–teacher and parent–child ratings of behavior (Chi & Hinshaw, 2002; Chi et al., in press; De Los Reyes et al., 2008; van der Oord et al., 2006; Youngstrom et al., 1999). Some evidence has been presented suggesting that high levels of parental depression may in fact bias parent ratings, with high levels of depression associated with overly negative reports of behavior (Chi & Hinshaw, 2002). Concordant with the van der Oord et al. study (2006) of ADHD symptom-specific parent–teacher agreement, stress was the only variable that predicted the discrepancy between mothers' and fathers' ratings. The direction of a putative causal relationship between parental stress and child misbehavior cannot be inferred from these correlational results.

It is indeed plausible that children with negative behavior cause more stress in their parents. But it is equally plausible that parents with increased stress rate their children more negatively. Parental stress appeared to affect fathers differently than it did mothers when rating their children's ADHD symptomatology. According to the PSI-SF manual, parents who obtain a total score above 90 are experiencing clinically significant levels of stress (Abidin, 1990). The mean PSI-SF for mothers in our sample was 92, as compared to 87 for fathers. Both mothers and fathers of children with ADHD appear to be experiencing significant parental stress. These scores are similar to those reported in other samples of parents who have children with ADHD (DuPaul, McGoey, Eckert, & VanBrakle, 2001). The regression analyses demonstrate that parental stress more highly correlates with fathers' ratings of children's ADHD symptomatology than with mothers' ratings. Plotting ADHD symptom ratings by level of stress (see Figure 1) reveals that fathers who report low levels of parenting stress rate their children's behavior less severely than do mothers with low levels of stress and that the discrepancy is greater. However, fathers who are experiencing moderate levels of stress are more likely to rate their children's behavior closer to that of mothers with moderate stress, and the discrepancy narrows. Furthermore, at the highest levels of stress, the discrepancy reverses; that is, the fathers rate their children's behavior more severely than the mothers do (see Figures 1 and 2). Again, directionality of these relations and the accuracy of the ratings cannot be determined from these data.

### ***Clinical Implications***

These findings have significant clinical implications, namely, because the American Academy of Pediatrics' guidelines for ADHD assessment stipulate that ADHD symptom-specific ratings—not broadband measures—be collected from parents. As such, physicians will likely be faced with considerable disagreement between mothers and fathers. One possible solution for dealing with discrepancies between mother–father ratings of ADHD symptoms would be to identify one parent as a primary and to weigh his or her ratings more heavily than the other's when making diagnostic decisions. The primary parent is typically the parent with greater exposure and knowledge of a child's behavior. A second alternative is to have mothers and fathers jointly complete ratings of ADHD symptomatology. The clinician could request that the parents come to agreement on each item. However, if parents could not agree on an item, they would be allowed to provide multiple responses. In those cases of multiple responses, the clinician could average the two responses or interview both parents and clinically determine the most accurate rating (i.e., similar to the procedure used with the *Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime Version (K-SADS-PL)* for handling discrepant parent–child reports; Kaufman et al., 1997). This technique fits well with the current recommendations that emphasize the multi-informant, multimethod approach to diagnosing ADHD (Pelham, Fabiano, & Massetti, 2005).

Regardless of the method chosen, one needs to consider the purpose of the assessment process. Researchers have argued that the overarching purpose of ADHD assessment should go well beyond diagnosis, to providing information that will guide intervention development (Pelham et al., 2005). The multi-informant assessment strategy may serve to inform the clinician about family dynamics and contextual differences that will play a role in the intervention process. For example, parental perceptions of the child and parental motivation for treatment are clinically relevant and so require consideration in interventions such as behavioral parent training (Pelham & Fabiano, 2008).

### ***Limitations***

The sample that was utilized in these analyses comprised a research sample of children diagnosed with ADHD—combined type; so, the findings may not generalize to a community sample or to a sample of children with ADHD—inattentive type. Furthermore, it is unknown whether these results apply to children with ADHD of different ages, such as preschoolers and adolescents. As noted in the Method section, primary parents’ responses on a structured interview were combined with teachers’ rating data to make the initial diagnosis of ADHD in the Multimodal Treatment Study of Children With ADHD and so may have restricted the range of responses of primary parents—mainly, mothers.

Also, we did not measure parental perception of behavior in terms of objectivity or ease of observation. Accordingly, our statements concerning the relationship between the observable nature of behavior and agreement are hypotheses based solely on previous research and cannot be empirically tested with the available data.

### ***Future Directions***

Fathers’ input is not typically sought as part of the diagnostic or therapy process nor as part of treatment outcome evaluations (Duhig, Phares, & Birkeland, 2002). This study found that in a clinic sample, mothers (when compared to fathers) rate symptoms of ADHD as being significantly worse. Unless we assume that mothers’ ratings are more valid than fathers’, this phenomenon could lead to overdiagnosis or at least an overestimate of severity. Additional research is needed to determine the incremental validity of adding fathers’ ratings to mothers’ ratings as part of the diagnostic process. Accordingly, if research determines that paternal ratings do make a significant contribution to the diagnostic process, then guidelines must be established for clinicians who are dealing with discrepant ratings of behavior or with families where only one parent is available. In addition, if this finding is replicated, it will be important for studies providing normative information on rating scales to include fathers and to report norms separately for mothers and fathers (or for primary and secondary caregivers).

Additional research is needed to explore the factors that may influence or even bias ratings of ADHD. It is possible that mothers (versus fathers) perceive symptoms of ADHD as occurring more frequently—for example, rating a behavior as occurring *very often*, as opposed to *often* or *sometimes*, possibly because they spend more time with the child. An alternate explanation is that fathers and mothers agree on the frequency of externalizing behaviors but that fathers view the behaviors as being less problematic and impairing—that is, the “boys will be boys” hypothesis. Studies where mothers and fathers observe a child’s behavior and then rate it may shed light on the relative accuracy of mother-versus-father ratings. Interestingly, a series of studies employing child confederates enacting ADHD/ODD behaviors and interacting with parents of both ADHD and non-ADHD children showed no differences between mothers and fathers in their perceptions of deviant child behavior on standardized ratings (Lang, Pelham, Atkeson, & Murphy, 1999; Pelham et al., 1997, 1998). This suggests that the findings obtained herein may be unique to mothers’ and fathers’ perceptions with their own ADHD children, as opposed to reflecting differences between mother–father perceptions of ADHD behavior in general. Also, some evidence suggests that ADHD children tend to have more deviant interactions with their mothers than with their fathers, and personal experience may underlie the observed difference (Tallmadge & Barkley, 1983). Until more research is available on factors contributing to these differences, it will be difficult to weigh the relative importance and accuracy of multiple parent raters in the diagnostic process.

### **Acknowledgment**

The Multimodal Treatment Study of Children With ADHD was a randomized clinical trial based on a

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